and erosion, or excessive external forces due to wind and snow. Factors affecting tree stability, and occurrence of compression wood, are root development and the relation between crown size and root distribution. Soil scarification may affect root development and growth of seedlings.

The aim of the present study was therefore to compare different soil preparation methods that are known to affect these parameters differently – mounding, disc trenching, ploughing and no soil preparation - 18 years after treatment. Two field experiments were analysed, one of low site fertility and one of mediate fertility, consisting of 16 plots, situated in the Middle part of Sweden (Lat 62° N, Long 14° E). Four trees per plot, two medium sized trees, and two large size trees, were sampled. From each tree stem discs from five to six different heights depending on tree height, were extracted starting from stump height and with three whorls between each height. The discs were scanned and analysed with respect to compression wood, out-of-roundness, and pith eccentricity using semi-automatic image analysis software developed for this purpose.

Growth rate had a large influence on the occurrence of compression wood. For larger trees on the more fertile site and for ploughing, compression proportion was about three times higher compared to no scarification. There was also a significant effect on the proportion of compression wood free diameter for both sites and all treatments. All properties analysed; compression wood, out-of-roundness and pith eccentricity decreased with increasing height in the stem. The results stresses the importance of evaluating the effect on the wood raw material produced of increased growth and instability that more radical soil preparation may produce.

Keywords: out-of-roundness, Pinus contorta, pith eccentricity, reaction wood, soil preparation

PP035

Validation of tomography in standing Quercus robur as a tool to study within-tree variability of wood properties

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In recent years a range of methods from geophysics have been transferred to forestry and arboriculture, especially decay detection and hazard tree assessment. Sonic tomography is now widely applied, with electrical resistivity tomography (ERT) as a recent addition.

Stress wave velocity in wood is related to density and elasticity. However, wood is not isotropic and stress wave velocities are collected in all directions from tangential to radial. In addition, in cross-sections with defects, the true distance traveled by the wave is not known. Thus, relationships between wood properties and tomographic data might actually by quite lose.

Several studies report high correlations between the amount of decay detected by the tomograms and that actually present in the cross-section. But so far, there have been only few and limited studies showing spatial correlations between tomographic and wood data.

Electrical resistivity depends on water and ion content. Thus, electrical resistivity tomography mainly visualises chemical properties. In Quercus robur, data from electrical resistivity tomography correlated with pH, Kalium, and Magnesium.

The objective of this study was to validate the results of non-destructive tomographic techniques obtained in standing trees against properties of wood samples collected after felling and to assess the use of these tools to study within-tree variability of wood. We compare the spatial distribution of tomographic data with that of wood density, MOE, and MOR.

Keywords: Non-destructive testing; density; modulus of rupture; modulus of elasticity
European oak (Quercus robur)

PP036

Anatomical characterization of the Wood of Faveira (*Parkia gigantocarpa* Ducke), occurring in the Brazilian Amazon

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The Amazon has the largest diversity in fauna and flora in the world. So much wealth attracts the attention of many who want to preserve and sustainably exploit. To preserve we need knowledge of the species, especially those that produce commercial timber. The wood anatomy is the study of secondary xylem of plants, their structure, organization, functions and characteristics of each cell element, thereby forming a heterogeneous and anisotropic structure. The anatomical study also allows, species lacking reproductive organs (flowers and fruits) can be identified to taxon family or even identifying and distinguishing apparently similar species.

Due to the large sale of Amazonian woods, the identification of these species by macro and microscopic characterization of wood are of extreme importance, because the specimens are no longer endowed with vegetative organs (flowers and fruits). The specimens were collected in the Brazilian Amazon, near the capital of Amazonas state, Manaus/AM. The macroscopic and microscopic descriptions followed the traditional methods used in studies of wood anatomy. Based on the anatomy of the species studied has characters that are fundamental to the identity and characteristics of the genre, such as growth indistinct layers, pores visible to the naked eye large, diffuse porosity, vessels with tangential arrangement. Axial parenchyma visible to the naked eye, paratracheal diamond aliform, aliform confluent may occur, rays visible only under 10x lens on cross and tangential planes, with vascular straight lines, in the radial spokes are somewhat mixed. Presence of crystals in radial cells.

These macroscopic characteristics when observed may provide identification oreven the distinction of species apparently identical.

Keywords: Anatomy wood, Faveira, Parkia , Brazilian Amazon

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